3

Differences between Externally and Internally Headed Relative Clause Constructions

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3.1 Introduction

In terms of truth conditional meanings, there is no clear difference between (Korean) IHRCs (internally head relative) like (1)a and EHRCs (externally headed relative) like (1)b.

(1) a. Tom-un [sakwa-ka cayngpan-wi-ey iss-nun kes]-ul
Tom-TOP apple-NOM tray-TOP-LOC exist-PNE KES-ACC
mekessta.
ate
'Tom ate an apple, which was on the tray.'

b. Tom-un [__ cayngpan-wi-ey iss-nun sakwa]-ul mekessta.
Tom-TOP tray-TOP-LOC exist-PNE apple-ACC ate
'Tom ate an apple that was on the tray.'

They all describe events of an apple's being on the tray and Tom's eating it. But, there exist several intriguing differences between the two constructions. One crucial difference between the IHRC and EHRC comes from the fact that the semantic object of *mekessta* 'ate' in IHRC examples like (1)a is the NP *sakwa* 'apple' buried inside the embedded clause followed by *kes*. It is thus the subject of the embedded clause *apples* that serves as the semantic argument of the main predicate.

In the analysis of such IHRCs, of central interest are thus (a) how we can analyze the constructions in syntax and (b) how we can associate the internal head of the IHRC clause with the matrix predicate so that the head can function as its semantic argument, and (c) what makes

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the differences between the two constructions. This paper is an attempt to provide answers to such recurring questions within the framework of HPSG.

3.2 Syntax of the IHRC

3.2.1 Internal Syntax

One noticeable morphological property of the IHRC construction is that as shown in (1)a, the embedded clausal predicate should be in the adnominal form of *(n)un*, followed by *kes*.[1] This is another main difference from EHRC, in that the predicate in EHRCs can have three different types of suffixes sensitive to tense information. This contrast is given in (2):[2]

(2) a. Tom-i $\_\__i$ ilk-nun/un/ul chayk$_i$
Tom-NOM read-PRES.PNE/PST.PNE/FUT.PNE book
'the book that Tom reads'

b. Tom-un [sakwa-ka cayngpan-wi-ey **iss-nun/*ul** kes]-ul
Tom-TOP apple-NOM tray-TOP-LOC exist-PNE KES-ACC
mekessta.
ate
'Tom ate an apple, which was on the tray.'

In the traditional Korean grammar, *kes* in the IHRC is called a 'dependent noun' in that it always requires a verb of an adnominal form and cannot exist alone as a word:

(3) (Na-nun totwuk-i unhayng-eyse) *(nao-nun) kes-ul
I-TOP thief-NOM bank-from come-out-PNE KES-ACC
capassta.
caught

Example (3) shows that the adnominal verb *nao-nun* is neither optional nor can be realized as an empty category.

A tight syntactic relation between the clausal predicate and the noun *kes* can also be found from the optionality of the IHRC in (4):

(4) a. Na-nun *(kangto-ka unhayng-eyse nao-nun) kes-ul
I-TOP robber-NOM bank-from come-out-PNE KES-ACC

[1] The restriction on the types of adnominal form seems to be related to semantic and pragmatic constraints. See section 4.

[2] These three basic kinds of tense-sensitive prenominal markers in the EHRC can be extended to denote aspects when combined with tense suffixes. Thus the possible prenominal verb forms are *ilk-ten* 'read-progressive', *ilk-essten* 'read-past progressive', *ilk-essul* 'read-past conjecture', *ilk-essessul* 'read-past perfective conjecture', *ilk-ko issten* 'past perfective progressive'

capassta.
caught
'I arrested the robber who was coming out of the bank.'

b. Na-nun (unhayng-eyse nao-nun) kangto-ul capassta.
I-TOP bank-from come-out-PNE kangto-ACC caught
'I arrested the robber who was coming out of the bank.'

The IHRC example in (4)a indicates that the adnominal IHRC clause as well as its predicate is an obligatory element. However, the entire EHRC clause in (4)b is optional.

The point to note is that in canonical control constructions the matrix verb can exist as an independent word, without the governed verb as in (5)a. This is different from a canonical complex predicate construction as in (5)b:

(5) a. (Na-nun John-hanthey sakwa-lul mek-ulako) seltukhayssta.
I-TOP John-DAT apple-ACC eat-PNE persuaded
'I persuaded John to eat an apple.'

b. na-nun sakwa-lul mek-e poassta
I-TOP apple-ACC eat-COMP tried
'I tried to eat an apple.'

Such observations support the assumption that the pre-adnominal verb and *kes* forms a syntactic unit, possibly functioning as a complex predicate, as argued by Chung (1999).

There seems to exist additional phenomena showing the parallelism between the IHRC and verbal complex constructions. One such phenomenon is the so-called afterthought expression construction:

(6) a. *Na-nun kes-ul capassta, totwuk-i unhayng-eyse nao-nun.
I-TOP KES-ACC arrested thief-NOM bank-from come-out-PNE
'I arrested the thief who was coming out of the bank.'

b. na-nun totwuk-ul capassta, unhayng-eyse nao-nun.
I-TOP thief-ACC arrested bank-from come-out-PNE

Sentence (6)a is an instance of the IHRC construction, where the IHRC is used as an afterthought expression. It shows that the IHRC cannot be used as an afterthought expression differently from the EHRC in (6)b. It suggests that *kes* and the adnominal verb constitute a syntactic unit and that they cannot be separated. The same pattern is also observed in the verbal complex construction:

(7) a. *Na-nun poassta, sakwa-lul mek-e.
I-TOP tried apple-ACC eat
'I tried an apple.'

b. Na-nun seltukhayssta, John-hanthey sakwa-lul mekulako.
I-TOP pesuaded John-DAT apple-ACC eat
'I persuaded John to eat an apple.'

(7)a is an instance of the verbal complex where the auxiliary verb and its governed verb cannot be separated, while (7)b is an instance of the control verb construction where the matrix verb and its complement are separable.

Besides the arguments based on the lexical integrity, another parallelism between the IHRC and verbal complex constructions arises from the fact that the heads of the constructions, namely, *kes* in the IHRC and the auxiliary verb in the verbal complex, are a kind of clitics, diachronically derived from independent words whose phonetic forms are the same. For example, the auxiliary verb *pota* 'try as a test' in (5)b and (7)a, has a non-auxiliary-verb counterpart *pota* 'see', which can be used as an independent word. The same observation can be made in the IHRC. The head *kes* in the IHRC can never be used as a referring expression and never takes a specifier such as *ku* 'the' and *ce* 'that':

(8) a. *Na-nun totwuk-i unhayng-eyse nao-nun ku
I-TOP thief-NOM bank-from come-out-PNE the
kes-ul capassta.
KES-ACC caught
'I arrested the thief who was coming out of the bank.'

However, there exists a referential noun counterpart kes 'thing', which can be used as a referring expression and can take a specifier:

(9) Na-nun ku kes-ul sassta.
I-TOP the thing-ACC bought
'I bought the thing (it).'

To sum up, there are some parallelisms between the verbal complex and the combination of "adnominal verb + kes" in the IHRC phrase. It suggests that the combination in the IHRC needs to be treated as a syntactic unit, namely, as a complex noun.

The contrast in (10) shows that whereas more than one EHRC clause can be stacked together, only one IHRC clause is possible:

(10) a. *kyongchal-i [**kangto-ka unhayng-eyse nao-nun**]
police-NOM [robber-NOM bank-from come.out-PNE]
[ton-ul hwumchi-in] **kes**-ul chephohayssta
money-ACC steal-PNE KES-ACC arrested
'(int.) The police arrested a thief coming out of the bank, stealing money.'

b. kyongchal-i [__ **unhayng-eyse nao-nun**]
police-NOM [bank-from come.out-PNE]
[ton-ul hwumchi-in] **kangto**-lul chephohayssta
money-ACC steal-PNE robber-ACC-ACC arrested
'(int.) The police arrested a thief coming out of the bank, stealing money.'

This contrast implies that the adnominal clause in the IHRC has the canonical properties of a complement clause.

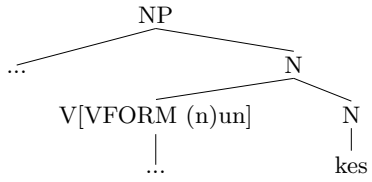
Given these observations showing a strong syntactic bondage between *kes* and the adnominal verb give us enough reason to take the verb *-kes* as a complex element as represented in the following lexical entry:

(11) Lexical Entry for *kes* (first approximation):

$$\begin{bmatrix} \langle \text{kes} \rangle \\ \text{HEAD} \quad \textit{noun} \\ \text{ARG-ST} \left\langle \text{V} \begin{bmatrix} \text{FORM} \ \textit{(n)un} \\ \text{ARG-ST} \ \boxed{a} \end{bmatrix} \right\rangle \oplus \boxed{a} \end{bmatrix}$$

The lexical entry in (11) specifies that the *kes* noun selects as its argument a verbal element as well as the arguments that this verb selects. The argument selection requirements of the adnominal verb are thus passed to the head *kes* with which it combines. This lexical information in turn means that the IHRC will have the following internal structure:[3]

(12)



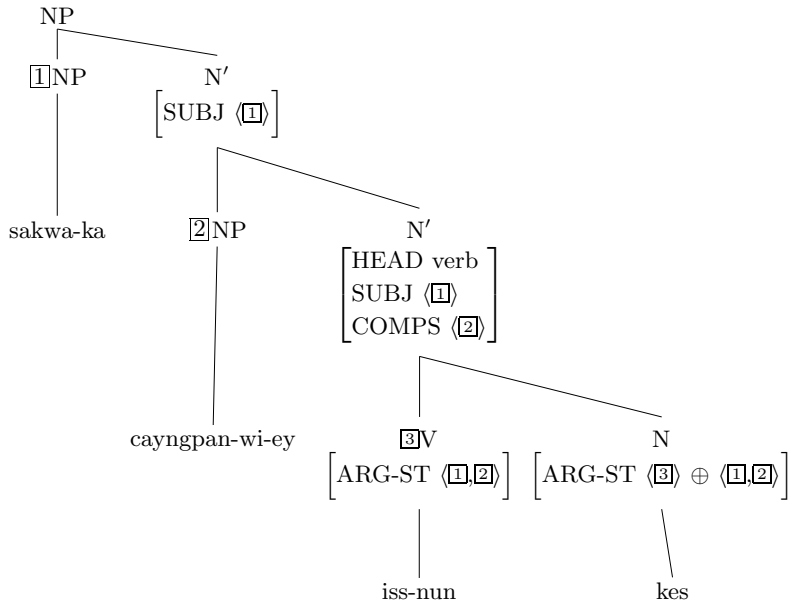
Such a structure, combined with the other universal constraints of the HPSG, will generate the following structure:

[3]Adopting Bratt (1995), we assume that Korean allows two lexical elements to combine to form a subphrasal element:

(i) Lexical Head-Complement Schema:
$X' \rightarrow$ Comp[+LEX], H[+LEX]

This schema captures the constituenthood of the preceding main verb and the following auxiliary verb. See Sells 1995 and Chung 1998 for a similar analysis.

(13)



The verb iss-nun takes a subject and an oblique complement. According to the lexical entry given in (11), the *kes* selects this verb as well as arguments via the argument composition mechanism (indicated by $\oplus$). When the *kes* combines with the verb *iss-nun*, the result still requires its oblique complement. The resulting complex combines with the oblique complement, forming a nominal phrase which in turn combines with the subject NP. We thus eventually can see here that the precise lexical information of the *kes* in the IHRC projects a fully saturated nominal phrase. In what follows, we will further see the nominal properties of the IHRC in its external syntax.

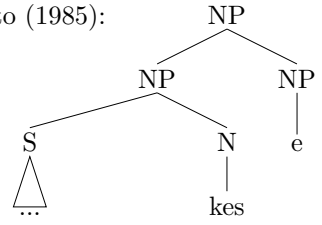
3.2.2 External Syntax

Given the internal syntax of the IHRC, let us see the relationship between the whole IHRC clause including *kes* and the matrix verb.

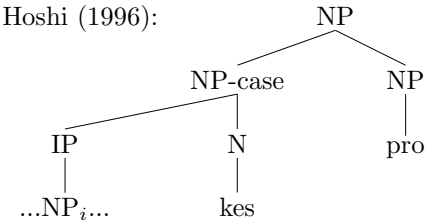
To relate the matrix verb with this 'internal semantic head', the traditional transformational grammar has introduced empty categories. For example, Ito (1985), Watanabe (1992), and Hoshi (1996) introduce an empty head noun approach for Japanese IHRCs. If interpreted for Korean, the structure would be something like the ones given in (14):[4]

[4]In Ito (1985) and Jhang (1994), Japanese *no* and Korean *kes* is taken to be a complementizer.

(14) a. Ito (1985):



b. Hoshi (1996):



Within Ito's head movement analysis, the internal head NP in the embedded sentence moves into the head position in LF. Hoshi's (1996) analysis posits the empty element *pro* is adjoined to an NP headed by *kes* which is modified by an IP. The *pro* is then coindexed with an NP within the IP.

Another direction that movement approaches have taken is to posit an empty head or a *pro* to the right of the subordinate clause and take the IHRC as an adjunct clause (Murasugi 1994, D.H. Chung 1996). In particular, Chung (1996) introduces a null perception predicate PRED, as represented in (15):

(15) Tom-un [sakwa-ka cayngpan-wi-ey iss-nun kes]-ul PRED
Tom-TOP apple-NOM tray-TOP-LOC exist-PNE KES-ACC
pro mekessta.
ate
'Tom ate the apples, which were on the tray.'

His analysis allows the empty PRED to be interpreted as predicates like *know, see, realize*, etc. The empty *pro* is presumably bound by its antecedent in the clause.[5]

Leaving aside the evaluation of such traditional empty-head analyses in detail, we claim that we could capture various properties of the construction even without positing empty elements, and further that there exist ample evidence supporting that the construction is a direct syntactic nominal complement of the matrix predicate.[6]

[5] One of the arguments for the adjunct clause lies on the fact that *kes* can be replaced by a temporal element such as *swunkan* 'moment', *hyoncang* 'place'.

[6] See Y.B. Kim (2002) for detailed criticisms against an adjunct analysis of Chung

A strong argument against an adjunct treatment centers on the passivization of the IHRC clause. As in (16), the object IHRC clause can be promoted to the subject of the sentence.

(16) [Tom-i talli-nun kes]-i Mary-eyeuyhayse caphiessta
Tom-NOM run-PNE KES-NOM Mary-by caught
'Tom, who was running, was caught by Mary.'

If we assume the IHRC clause is an adjunct clause from semantic or syntactic reasons, we would then need to introduce a system that an adjunct clause can participate in the passivization process, contrary to most current practice. In contrast, the present analysis where the IHRC clause is a nominal element would not block the clause from being promoted to the subject from the object.

A related problem of such an empty PRED approach would be that the empty PRED cannot assign nominative case to subject IHRC phrases like (16) and (17) since perception verbs such as *realize*, *see*, etc. assign accusative case to its complement. The case value is purely due to the main predicate *salaciessta*:

(17) [sakwa-ka cayngpan wi-ey iss-ten kes]-i PRED]
apple-NOM tray on-LOC exist-PST-PNE KES-NOM
[*pro* salaciessta]
disappeared
'The apple, which was on the tray, disappeared.'

In addition, if there is an empty *pro* in the sentence with the IHRC, there appears to be no reason to block us from replacing it from an overt pronoun. But such a replacement is not possible:

(18) *[sakwa-ka cayngpan wi-ey iss-ten kes-i PRED]
apple-NOM tray on-LOC exist-PST-PNE KES-NOM
[*ku kes-i* salaciessta]
that one-NOM disappeared
'The apple, which was on the tray, disappeared.'

In addition, the case marking pattern also implies that the construction is a complement. Unlike the so-called complementizer, *-ko*, the word *kes* can attract the nominative and accusative case markings as we have seen above. Some more examples are shown in (19) where *kes* attracts genitive or even instrument case markings:

(19) a. ?[Kangto-ka unhayng-eyse nao-nun kes-uy] chepho
robber-NOM bank-from come-out-PNE KES-GEN arrest
'the arrest of the robber who was coming out of the bank.'

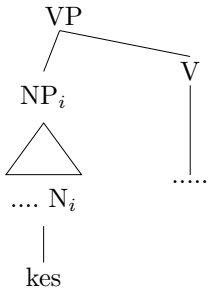
(1996)

b. [Mary-ka ton-ul pill-in kes]-**ulo** chayk-ul sassta
Mary-NOM money-ACC lend-PNE KES-INST book-ACC bought
'Mary lent some money and bought a book with it.'

This case marking pattern shows that the IHRC is a nominal projection. Such a case assignment pattern is a canonical property of a complement, rather than an adjunct.

Based on these observations, we assume the structure (19) for the external structure of the IHRC.

(20)



3.3 Semantic Aspects of the IHRC

Given the internal and external syntax of the IHRC, the remaining issue is how to associate one of the arguments in the IHRC clause as the semantic argument of the matrix predicate. As hinted earlier, the approach we take is to assume that *kes* is a kind of pronoun looking for its antecedent within the adnominal's arguments as represented in (21):

(21) Lexical Entry for *kes* (second approximation):

$$\begin{bmatrix} \langle \text{kes} \rangle \\ \text{HEAD} \quad \textit{noun} \\ \text{ARG-ST } \boxed{b}\langle ...[\ \ ]_i ... \rangle \\ \text{CONTENT} \mid \text{INDEX i} \end{bmatrix}$$

(where $\boxed{b}$ results from the argument composition $\left\langle \text{V}\begin{bmatrix}\text{FORM (n)un}\\ \text{ARG-ST } \boxed{a}\end{bmatrix}\right\rangle \oplus \boxed{a}$)

What this lexical entry tells us is that the index value of *kes* is identical with either the adnominal verb or one of the arguments that the adnominal verb selects (this plays an important role in capturing an event as well as an entity reading). The treatment of *kes* as a kind of pronoun gets strong support from its pronominal properties (cf. D.H. Chung 1996). For example, the target of the internal head in (21) is highly dependent upon context:

(22) [koyangi-ka cwui-lul ccoc-ko iss-nun kes-ul]
cat-NOM mouse-ACC chase-COMP in.state-PNE KES-ACC
capassta
caught
'(He) caught the mouse that the cat was chasing.
(He) caught the cat that was chasing the mouse.'

Depending on the context, the internal head could be either the cat or the mouse or even both. Also, in the IHRC, *kes* can have split antecedents as illustrated in (23).

(23) [koyangi-ka cwui-lul ccoc-nun kes-ul] katwuessta.
cat-NOM mouse-ACC chase-PNE KES-ACC penned
'(I) penned a cat chasing a mouse.'

The target of the verb *katwuessta* 'pen' could be both 'cat' and 'mouse'.[7]

In addition, the *kes* in the construction can even have an implicit antecedent, which is one of the canonical properties of pronouns:

(24) [[khep-uy mwul-i nemchi-n] kes-ul] ttakassta.
cup-GEN water-NOM overflowed-PNE KES-ACC wiped-out
'(I) wiped out the water that overflowed from the one in the cup.'

The interpretation we have for the example (24) is such that what I wiped out isn't the water in the cup but the one that overflowed. There is no overt antecedent for the pronoun *kes*.

Another point to note here is that IHRCs are syntactically very similar to clausal complements. IHRCs and clausal complements both function as the syntactic argument of a matrix predicate. But, in the IHRC (25)a, an internal head within the embedded clause functions as its semantic argument whereas the embedded clausal complement in (25)b itself is the semantic argument of the matrix predicate.

(25) a. John-un [Mary-ka talli-nun kes]-ul **capassta**.
John-TOP Mary-NOM run-PNE KES-ACC caught
'John caught Mary who was running.'

b. John-un [Mary-ka talli-nun kes]-ul **mollassta**.
John-TOP Mary-NOM run-PNE KES-ACC not.know
'John didn't know that Mary was running.'

The only difference between (25)a and (25)b is the matrix predicate. This difference induces the meaning difference. As in (25)a, when the matrix predicate is an action verb such as *capta* 'catch', *chepohata* 'arrest', or *mekta* 'eat', we obtain entity readings. But as in (25)b we have

[7] Like (22), the target could be either *cat* or *mouse* too.

only event readings when the matrix predicate is a type of recognition verb such as *po-ta* 'see', *al-ta* 'know', and *kiekhata* 'remember'.

The key point in our analysis for the IHRC is that its interpretation is dependent upon the type of matrix predicate. What we assume is that the matrix predicate affects the interpretation of the pronoun *kes*. In the lexical entry we sketched in (21), the subcategorization information of a predicate involves not only syntax but also semantics. For example, the verb *capassta* 'caught' in (26) lexically requires its object to refer to a referential individual whereas the verb *mollassta* 'not.know' in (27) selects an object complement whose index can refer to a propositional situation.

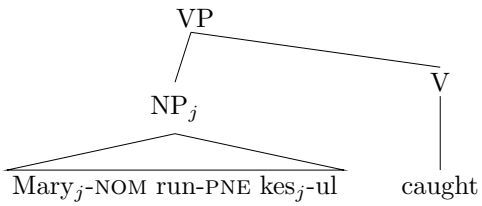
(26)
$$\begin{bmatrix} \langle \text{capassta 'caught'} \rangle \\ \text{ARG-ST } \langle \text{NP}_i, \text{NP}_j \rangle \\ \text{CONT} \mid \text{RESTR} \left\langle \begin{bmatrix} \text{RELATION} & \text{catch} \\ \text{AGENT} & i[\text{MODE } \textit{ref}] \\ \text{PATIENT} & j[\text{MODE } \textit{ref}] \end{bmatrix} \right\rangle \end{bmatrix}$$

(27)
$$\begin{bmatrix} \langle \text{mollassta 'not.know'} \rangle \\ \text{ARG-ST } \langle \text{NP}_i, \text{NP}_s \rangle \\ \text{CONT} \mid \text{RESTR} \left\langle \begin{bmatrix} \text{RELATION} & \text{not.know} \\ \text{EXPERIENCER} & i[\text{MODE } \textit{ref}] \\ \text{THEME} & s[\text{MODE } \textit{sit}] \end{bmatrix} \right\rangle \end{bmatrix}$$

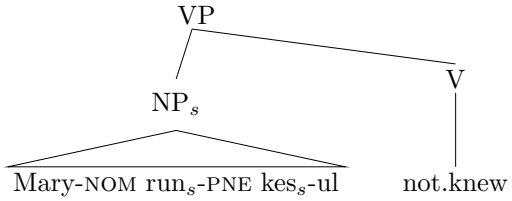
In the IHRC construction, such lexical requirements are in one sense passed on to the head element *kes* and this semantically empty pronoun will look for one (most) salient discourse binder such as either an individual as in (26)a or a propositional event as in (26)b.

Such lexical requirements given in (26) above will ensure that *kes* is properly coindexed with one of its semantic restrictions. For example, our system would generate the structure (28)a for the sentence (25)a and the structure (28)b for the sentence (25)b:

(28) a.



b.



As represented in the structures, the meaning of *kes* in (28)a is identical with the noun phrase *Mary* whereas the one in (28)b is coindexed with the predicate *talli-nun* 'run-PNE'. This is possible due to the lexical entry for *kes* given in (21). Given this lexical entry, the *kes* in (28) will look like the following:

(29)
$$\begin{bmatrix} \langle \text{kes} \rangle \\ \text{HEAD} \quad \textit{noun} \\ \text{ARG-ST} \ \langle \text{NP}[\textit{nom}]_j, \ \text{V}[\text{VFROM} \ \textit{nun}]_s \rangle \\ \text{CONTENT} \,|\, \text{INDEX} \ \textit{j/s} \end{bmatrix}$$

As noted, the INDEX value of *kes* can be coindexed with that of any element in its ARG-ST, either the subject 'Mary-NOM' or the predicate V 'run-PNE'. This would result in assigning a referential reading to the IHRC NP in (29)a as indicated by NP$_j$ whereas a situational (or event) reading to the top NP in (29)b as indicated by NP$_s$.

One clear advantage of such an analysis is a clean account of the near complementary distribution of the clausal complement NP and the IHRC, as well as for their structural identity, which no analyses have paid attention to. The analysis obtains an entity reading when the index value of *kes* identified with that of an argument of the matrix predicate. Meanwhile, the analysis induces an event reading for the IHRC when the index value is structure-sharing with that of the adnominal predicate. This analysis, thus, correctly predicts no cases where two readings are available simultaneously.

The proposed analysis could also account for facts pertaining to floating quantifiers. There is a kind of locality condition (e.g., mutual c-command relation) on the structural relationship between a floating quantifier and its interpretively associated argument NP:

(30) a. Tom-un [**sakwa-ka seykay-ka** iss-nun sangca-ul]
Tom-TOP apple-NOM three-NOM exist-PNE box-ACC
hwumchessta.
stole
'Tom stole the box that had three apples.'

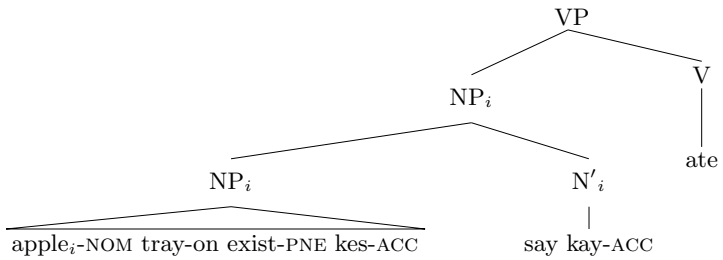
b. *Tom-un [**sakwa-ka** iss-nun sangca-ul] **seykay-ka**
Tom-top apple-nom exist-pne box-acc three-nom
hwumchessta.
stole

The data suggest that the host of a floating quantifier can be only a nominal element in the same clause. Such a locality condition in cases like (30)b can be overridden in the IHRC as in (31):

(31) Tom-un [**sakwa-ka** cayngpanwi-ey iss-nun **kes**]-ul
Tom-top apple-nom tray-acc placed-pne kes-acc
sey-kay-lul/*ka mek-ess-ta.
three-cl-acc/nom eat-past-decl
'Apples were on the tray, and Tom ate three of them.'

In the present analysis, the classifier *say kay* 'three things' in (31) is construed with *kes* whose meaning in turn is identical with that of the target *sakwa* 'apple'. This can be roughly represented as in (32):[8]

(32)



As can be seen from the structure, the pronoun *kes* is identified with 'apple' in the IHRC clause. The semantic index value of this head pronoun NP is passed up to the NP construction. The classifier is then construed with this NP whose index value is again percolated up to the topmost NP which eventually is coindexed with the PP in the clause. One general constraint in the language is that the case value of a floating quantifier should match that of its host NP. Notice that the case marking on the floating quantifier in (32) cannot be nominative but must be accusative. This once again supports our claim that the IHRC construction is a nominal NP that can serve as the antecedent of a floating quantifier. If not, we need to look for a different NP with the accusative case in the same local domain.

One thing to notice here is that though we treat *kes* as a kind of pronoun, the present analysis restricts its antecedent to be within a restrict

[8]Following Sag and Wasow (1999), we assume that the mother's index value is indentical with that of the head daughter.

domain, neither deeply embedded within the IHRC nor located outside the clause. This brings us one welcoming result: it easily captures the fact that the IHRC construction cannot be treated as an instance of the unbounded dependency as in the EHRC construction:

(33) a. Na-nun [kutul-i [__ $_i$ unhayng-eyse nawassta-ko]
I-TOP they-NOM bank-from came-out-COMP
malha-n] kangtoi-lul capassta. (EHRC)
say-PNE robber-ACC caught
'I arrested the robber who they said was coming out of the bank.'

b. *Na-nun [kutul-i [kangtoi-ka unhayng-eyse
I-TOP they-NOM robber-NOM bank-from
nawassta-ko] malha-n] kes$_i$-ul capassta. (IHRC)
came-out-COMP say-PNE KES-ACC caught
'I arrested the robber who they said was coming out of the bank.'

In the EHRC (33)a, the head of the EHRC phrase, *kangto*, is construed with the gap within the deeply embedded clause as in the English relative clause. In (33)b, however, the head of the IHRC phrase, *kes*, cannot be construed with *kangto*, showing that the IHRC phrase does not involve the unbounded dependency.

3.4 Pragmatic Aspects

3.4.1 Implicit Antecedent

One of the remaining issues in the present analysis concerns cases where the pronoun *kes* has an implicit antecedent whose data we repeated here in (34):

(34) [[khep-uy mwul-i nemchi-n] kes-ul] ttakassta.
cup-GEN water-NOM overflowed-PNE KES-ACC wiped-out
'(I) wiped out the water that overflowed from the one in the cup.'

In such cases, the antecedent of the pronoun *kes* is an implicit participant resulted from the event denoted by the IHRC clause.

Interestingly, such a phenomena can be observed in the so-called pseudo relative clauses as in (35) (See Kim 1998):

(35) a. [mwul-i hulu-nun] soli
water-NOM flow-PNE sound
'the sound of water's flowing'

b. [komu-ka tha-nun] naymsay
rubber-NOM burn-PNE smell
'(literally) the smell such that rubber is burning',
'the smell that characterizes the burning of rubber'

What the sentence in (35) describes is one of the possibilities that could happen or result from the event of water's flowing. Informally, such a meaning can be represented as in (36) (see Yoon 1993 also):

(36) λx[sound′(x) & flow′(w) & perceptive-result-event(flow′(w), x)]

There exist the sound x and the event of water's flowing and this x is in the perceptive-event-relation with the event of water's flowing.[9]

When there is no such perceptive-result relation between the clause and the head, the pseudo relative clause is not acceptable:

(37) a. [thayphwung-i cinaka-n] huncek
typhoon-NOM passed.by-PNE debris
'(literally) the debris such that a typhoon passed by'
'the debris that resulted from a typhoon's passing by'

b. *[thayphwung-i cinaka-n] phihay
typhoon-NOM passed.by-PNE damage
'(intended) the damage caused from a typhoon'

Though the debris could be a result of a typhoon we can perceive, the abstract NP *phihay* 'damage' is not.

We accept that such a pragmatic relation also holds in the IHRC construction too. We may attribute such a pragmatic relation to constructional constraints on the phrase that combines an adnominal element with a limited set of head elements including *kes*:[10]

(38) Constraints on *head-adnom-comp-ph*:

head-adnom-comp-ph →

[9] Yoon's (1993) analysis takes this 'perceptive-result-event' relation as pragmatic R-relation (relative clause relation) for all types of relative clauses. A support for such an interpretation could be found from the fact that the appropriate paraphrasing of the psuedo relative clause (35)b into the canonical relative clauses is something like (i):

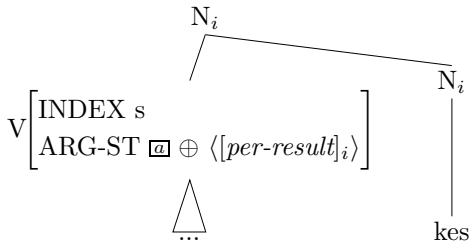
(i) [[komu-ka tha-lttay] na-nun] naymsay
rubber-NOM burn-when come.out-PNE smell
'the smell that comes out when rubber is burning'

[10] We assume that *head-adnom-comp-ph* has at least two subtypes *head-pseudo-ph* and *head-ihrc-ph* (cf. Kim 1998).

$$\left[\begin{array}{l}\text{INDEX s}\\ \\ \text{ARG-ST } \boxed{a} \oplus \left\langle \left[\begin{array}{l}\text{RELN } \textit{perceptive-result}\\ \text{ARG1 s}\end{array}\right] \right\rangle\end{array}\right] \qquad \mathbf{H}[\ \ ]$$

The constraint in (38) tells us that in an instance of *head-adnom-comp-ph*, the adnominal predicate (denoting a situation *s*) can add to its ARG-ST an additional argument denoting a salient participant (perceptive-result) *i* generated from the situation which we obtain from the result of the event *s*. This can be roughly represented in (39):

(39)



The notion of this context-based argument is similar to a shadow argument in Pustejovsky (1998). Such an argument refers to semantic content that is not necessarily expressed in syntax and appears only by such pragmatic specifications (cf. Pustejovsky 1998).[11]

The decision of the implicit argument is dependent upon various grammatical factors: lexical, semantic, and pragmatic. For example, when context prefers an overt element to be the antecedent of *kes*, this explicit antecedent is preferred over an implicit argument produced from the constraint in (39). Consider the pairs in (40):

(40) a. [paci$_i$-ka telewe ci-n kes$_j$-ul] ttakanayssta
pants-NOM dirty become KES-ACC wiped out
'The pants became dirty and (I) washed out the dirt from them.'

b. [paci$_i$-ka telewe ci-n kes$_i$-ul] ppalassta
pants-NOM dirty become KES-ACC washed
'The pants became dirty and I washed them.

Though the semantic argument of the matrix predicate in (40)a is an implicit argument, the one in (40)b is the subject. We cannot wipe out the pants themselves, but the dirt itself as in (40)a. Though we can wash the dirt or the pants, the preferred antecedent is an overt one,

[11] Since such a constraint is specified on the supertype of the pseudo relative clause and the IHRC, it catpures the generalizations of the two types which otherwise we would miss.

the subject.

3.4.2 Relevancy Condition

We accept the view that pragmatic conditions such as 'relevance condition or simultaneity condition' (Kuroda 1976) also play important roles in selecting its own semantic restriction value. For example, the relevancy condition specifies that an IHRC clause should be interpreted as pragmatically in such a way as to be directly relevant to the pragmatic content of its matrix clause (see Uda 1998, Kim 2002 for detailed discussion). This condition accounts for the following contrast:

(41) a. Tom-un [sakwa-ka cayngpan-uy-ey iss-nun kes]-ul
Tom-TOP apple-NOM tray-TOP-LOC exist-PNE KES-ACC
mekessta.
ate
'Tom ate the apple that was on the tray.'

b. #Tom-un [sakwa-ka eche cayngpan-uy-ey iss-ess-ten
Tom-TOP apple-NOM yesterday tray-TOP-LOC exist-PST-PNE
kes]-ul onul mekessta.
KES-ACC today ate
'Today Tom ate the apples, which were on the tray yesterday.'

The difference between these two sentences is that in the IHRC of (41)b there is a time adverb *yesterday* and the adnominal verb has the past form *iee-ess-ten*. The existing condition is that the two events described by the matrix and the embedded clause should be in the identical temporal location.

Observe that such a condition does not exist in the EHRC:

(42) Tom-un [ecey cayngpan-uy-ey iss-ess-ten sakwa]-ul
Tom-TOP yesterday tray-TOP-LOC exist-PST-PNE apples-ACC
onul achim-ey mekessta.
this morning ate
'This morning Tom ate the apple that was on the tray yesterdy.'

In a similar fashion, As also claimed by Y.B. Kim (2002), there appears to exist a strong 'meaningful' relationship between the IHRC and the matrix clause.[12]

[12] We leave open how to formalize this condition within the HPSG feature system. Informally, what we can say is, following Kim (2002), that the event denoted by the IHRC is relevant to the matrix event when both events are in the set of relations retrievable from the background of the discourse participants.

3.5 Information Packaging and More on the Differences

One telling property that differentiates the IHRC from the EHRC is that unlike the EHRC, the IHRC cannot function as an answer to a *wh*-question, as we observe in (43):

(43) A: kyongchal-i nwukwu-lul capasstako?
policeman-NOM who-ACC caught
'Who did you say the policeman caught?'
B: [[unhayng-eyse nao-nun] kangto-lul] capasse.
bank-from come.out-PNE robber-ACC caught
'(They) caught the robber coming out from the bank.'
B′: #kangto-ka unhangy-eyse nao-nun kes-ul capasse.
robber-NOM bank-from come.out-PNE KES-ACC caught

This paper claims that such a difference between the IHRC and the EHRC are basically due to what is focused: In the IHRC, the event described by the IHRC clause, that is, denoted by the adnominal predicate, is newly conveyed information whereas in the EHRC no such a restriction holds. We could attribute this as a lexical constraint on the pronoun *kes* as represented in (44) (cf. Engdahl and Vallduví (1996)):

(44) Lexical Entry for *kes* (final):

$$\begin{bmatrix} \langle \text{kes} \rangle \\ \text{HEAD} \quad \textit{noun} \\ \text{ARG-ST} \ \boxed{b}\langle \ldots [\ \ ]_i, \ldots [\ \ ]_s \ldots \rangle \\ \text{CONTENT} \mid \text{INDEX} \ i/s \\ \text{INFO-ST} \mid \text{FOCUS} \ s \end{bmatrix}$$

(where $\boxed{b}$ results from the argument composition $\left\langle \text{V}\begin{bmatrix} \text{FORM} \ \textit{(n)un} \\ \text{ARG-ST} \ \boxed{a} \end{bmatrix} \right\rangle \oplus \boxed{a}$)

The lexical entry means that the pronoun *kes* constructionally assigns focus value to the preceding adnominal predicate. What this implies is that the embedded IHRC clause carries focus and conveys new information about the event represented by the clause predicate. That is, following Ohara (1996), we also accept the view that the IHRC clause has a function of event reporting.) We could observe that an IHRC cannot be used when the event described by the IHRC is given in a previous context. For example, when the information such that John was eating apples was already given in prior context, unlike the EHRC in (45)b, the IHRC in (45)c is an inappropriate statement:

(45) a. [A:] .... John-i sakwa-lul mek-ko issessta...
John-NOM apple-ACC eat-COMP in.progessive
'...John was eating an apple...'

b. [B:] kuttay kapcaki nwukwunka-ka [sakwa-lul mek-ko
then suddenly someone-NOM apple-ACC eat-COMP
iss-nun] John-ul pwulessta
is-PNE John-ACC called
'Then suddenly somebody called John, who was eating apples.'

c. [B:] #kuttay kapcaki nwukwunka-ka [John-i sakwa-lul
then suddenly someone-NOM John-NOM apple-ACC
mek-ko iss-nun] kes-ul pwulessta
eat-COMP is-PNE KES-ACC called

In our analysis, (45)b is not a natural continuation when the information that John's eating the apples is given information. This is because the event of John's eating an apple has already been introduced and cannot function as carrying new information. In this sense, the IHRC represents 'information focus', conveying new, nonpresupposed information without expressing exhausitive identification performed on a set of contextually or situationally given entities (cf. Kiss 1998).

This implies that the IHRC construction cannot serve as an expression referring to an individual, but can function only as a reply to an event asking query. Such a fact can be attested by another example. An IHRC can be an answer only to an event asking query like (46)A:

(46) A: kyongchal-i totuk-ul etteskey capasstay?
police-NOM robber how caught?
(Do you know) how the police caught the robber?'

B: Kyongchal-i [totwuk-i ton-ul hwumchi-nun kes-ul]
police-NOM thief-NOM money steal-PN KES-ACC
capass-tay.
caught-said
'(People) said that the police arrested the robber who was stealing money.'

Once we accept the proposed view, we can provide a streamlined analysis for several complicated properties of the IHRC construction as well as the differences between IHRCs and EHRCs. As we have seen earlier, various phenomena indicate that the IHRC construction has some nominal properties: nominal case markings and passivization. However, unexpected from these nominal properties, we cannot cleft the construction as in (47) because of the mismatch in what is focused.

(47) a. [Mary-ka cap-un kes]-un talli-nun [Tom-i-ta].
Mary-NOM catch-PNE KES-PNE run-PNE Tom-NOM COP-DECL
'(int.) What Mary caught was Tom, who was running.'

b. *[Mary-ka cap-un kes]-un [Tom-i talli-nun
Mary-NOM catch-PNE KES-PNE Tom-NOM run-PNE
kes]-i-ta.
KES-COP-DECL
'(int.) What Mary caught was Tom, who was running.'

As a canonical constraint on the cleft-construction, the focused value cannot be a VP or an event. The canonical focused value is an NP nominal. Under our assumption, the IHRC construction, though syntactically an NP, focuses an event whereas the focused element in the cleft is generally an NP referring to an individual.

Another welcoming consequence of the analysis is that it can provide a clue as to why it is not possible to have an unaccusative verb or a verb in IHRC that describes an intrinsic property of an entity as in (48): The most natural class of verb that can report an event or describe an event is a stage level predicate.[13]

(48) *Tom-un [John-i **hyonmeyongha-n** kes]-ul
Tom-TOP John-NOM smart-do-PNE KES]-ACC
chochenghayessta.
invited
'(int.) Tom invited John, who was smart.'

It has been also noted that the IHRC cannot be in the form of negative as in (49)a.

(49) a. #John-i [[Tom-i **an talli-nun**] kes]-ul capassta.
John-NOM Tom-NOM not run-PNE KES-ACC caught
'John caught Tom, who was not running.'

b. John-i [[Tom-i **memcwuci anh-nun**] kes]-ul
John-NOM Tom-NOM stop not-PNE KES-ACC
capassta.
caught
'John caught Tom, who wasn't stopping.'

Such a condition can also be found in English locative inversion:

(50) a. *On the wall never hung a picture of U.S. Grant.
b. On the wall hangs not a picture of U.S. Grant but one of Jefferson Davis. (Aissen 1975)

[13]The EHRC counterpart is grammatical.

According to Aissen (1975), the locative phrase functions as a backdrop, and the assertion that such a scene does not exist cannot serve this purpose. We conjecture that such a condition also holds in the Korean IHRC. Within our theory, this is so because there is no event to be focused. But if the negative IHRC entails an event that is happening or happened, we could focus the IHRC construction as shown in (50)b. The IHRC in (50)b entails that Tom remained as he was and John caught him. Thus what is focused would be the semantic content of the IHRC that includes a resultant event from the clause.

In sum, what the present analysis shows us is that the IHRC is syntactically and semantically a nominal construction whereas in terms of information packaging it has sentence-like properties in that the event described by the clause is focused.

3.6 Conclusion

We have shown that the Korean IHRC is formed by a complex-predicate mechanism of the semantically empty pronoun, *kes*: the pronoun combines with an adnominal verb, forming a strong syntactic unit. And the selection of the internal head is dependent upon the semantics of the matrix predicate and context in question.

We have also claimed that the IHRC reading is obtained when the pronominal *kes* is coindexed with one argument of the adnominal verb. Meanwhile, we obtain an event reading when the pronominal is coindexed with the eventive relation of the adnominal verb. The present analysis claiming what is focused differentiates between the IHRC and the EHRC provides a clean account of their differences in various phenomena. This line of lexicalist, nonderivational analysis could avoid the postulation of any phantom formatives (such as *pro*), and eventuallly provides us with a clearer and simpler grammar of Korean (and possibly Japanese too).

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